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An Inaugural Essay on Strictures of the Urethra

For the Degree of Doctor of Medicine in the University of Pennsylvania.

By Lynch H. Deas of Charleston S. C.

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On Strictures in the Urethra

In compliance with a regulation of this Institution requiring each Medical Student to offer a Thesis on some medical or surgical subject before graduating I submit the following on Strictures in the Urethra. I have selected this subject, being one which I have seen several cases of while studying under my preceptor Dr. B. B. Simons, by whose polite indulgence and under whose inspection I had an opportunity frequently of introducing the bougie and the Catheter. Tho there was nothing remarkable in any of the cases still it gave me an opportunity of seeing a great deal which I should have been obliged to take upon the assertion of another. I am indebted for my remarks principally to the works of Sir E. Home and Mr. Bingham. —

It will be necessary to consider the nature causes symptoms and Treatment of the disease in its

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different stages.- In the first place The Nature of the Membrane of the Urethra. It has been a sub=ject of much discussion and is not yet determi=ned wether this membrane be muscular or not. Mr. Hunter and Sir E. Home are of opinion that it is muscular; Mr. Charles Bell, Mr. Shaw and others that it is not. Certain it is that the Urethra enlarges in the passage of the Urine and contracts in the ejection of the semen; also any one who introduces a bougie often will at times be sensible of so powerful a contraction around it as to prevent its passing on without injury to the parts. Wether this contraction be owing to muscularity in the membrane of the Urethra, or to the muscles surrounding the penis is un=certain; but as the determination of this point is not important to the consideration of the sub=ject I shal leave it and go on to consider, The Formation of Strictures.- This membrane of the

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Urethra like all other structures which either are muscular, or under the influence of muscula=
=rity is liable to spasmodic contractions. Sir E. Home remarks if upon the removal of the spasm the canal assumes its natural shape it is called simple spasmodic stricture; but if after the removal of the spasm it does not assume its natural form it constitutes a permanent stricture. A permanent stricture tho not necessarily may also be spasmodic ~~wether seperate or combined~~ wether seperate or com=
=bined it may be defined, as a contraction of the transverse fibres of the membrane which forms that canal. Sir E. Home has been particular in ascertaining the dimensions of the Urethra from which he has adduced the following fact that the parts of the Urethra most liable to stricture are those which are naturally the smallest; these are at 7 inches which is just behind the bulb, next in frequency 4½ inches from the orifice of the glans

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sometimes 3½ or nearer the external orifice and sometimes even the orifice itself is the seat of stricture. Strictures vary in their appearance and number the most frequent and simple is that described by authors as having the appearance of a pack thread tied around that part of the canal. Sometimes there is only one or two strictures in different parts of the canal; sometimes a series of strictures one after the other forming an irregular contraction in that part of the canal, this last is a very difficult kind to treat. The causes of stricture. Strictures are said to arise from Gonorrhœa. Mr. Hunter thought they never arose from this cause. Sir A. Cooper says 99 cases out of 100 arise from neglected gonorrhœa. Astringent injections ~~[illegible]~~ mentioned as a cause of stricture. Mr. Hunter did not think this a cause of stricture either; however I believe most ~~modern~~ surgeons suppose gonorrhœa venereal and astringent injections to be three of the most

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frequent causes of stricture. Protracting the act of coition; or an excessive frequent indulgence in it are causes of stricture; these acts bring on spasmodic contraction and in that way produce strictures. Mr. Bingham says spasmodic strictures almost always precede permanent ones. Stone in the bladder; diseased prostate gland; a blow in the perineum, or in short any thing which pro=
=duces great irritation in the Urethra may be a cause of stricture. Some of the above mentioned causes are frequently an effect of strictures and sometimes independent diseases which are con=
=founded with strictures; but more particularly of this when mentioning diseases which are fre=
=quently mistaken for stricture. It may be men=
=tioned here that some constitutions are naturally predisposed to strictures, so that they may arise at a very early age from the slightest exciting cause

Symptoms of Stricture. Symptoms of stricture

are both Local and Constitutional. First, The Lo=
=cal Symptoms. The only symptom mentioned in
the commencement of the disease is a dimi=
=nution in the stream of urine which is not
generally very perceptible, so that the disease
may exist some time without the knowledge
of the person and the first warning which he
gets is a difficulty in passing the Urine. As the
disease advances new and more evident symp=
=toms are perceived. The Urine is voided more fre=
=quently; does not pass without considerable effort
and some pain; there is an effort to eject the last
drops of urine and some straining after they are
voided; nocturnal emissions; a slight discharge
from the urethra, which is increased by catching
cold to which patients labouring under stricture
are peculiarly liable. In any sudden change
from heat to cold the urine is either entirely
suppressed or passes only in drops. Mr. Bingham

has also mentioned as a symptom of Stricture shooting pains in the perineum in the glans penis, around the loins and down the thighs. Also in stricture the Urine splits and passes out in a forked stream. The Constitutional symptoms of Stricture. The most common symptom of this kind is a complete paroxism of fever and ague. The cold fit is extremely severe, this is followed by the hot stage, after which there is a profuse perspiration. Sir E Home remarks, that this attack differs from the common fever and ague in the profuseness of the perspiration, the fits do not return periodically and seldom more than twice. A disordered state of the stomach is a frequent constitutional symptom of Stricture: it has been remarked that this state of the stomach has not yelded to medecines but has got well on the removal of the stricture.

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Diseases whose symptoms resemble those of Stricture. Sir E. Home says that inflamation of the Urethra from Gonorrhoea frequently puts on all the symp=
=toms of Stricture, even a difficulty in passing the Urine, and diminution in the size of the stream; but he remarks this difference, that before all the Urine is voided the difficulty goes off and the stream assumes its natural size, which is not the case in Stricture. He also remarks that an irritable state of the bladder, from the sym=
=pathy which exists between it and the Urethra produces a spasmodic contraction in that canal which may be mistaken for stricture. A diseased state of the Prostate gland is frequently mistaken for Stricture. Sir E. Home remarks that when the Prostate gland is enlarged it projects into the neck of the bladder and it is from this circum=
=stance that it is so often mistaken for Stricture; this enlarged state of the Prostate may be detected

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by passing the finger into the rectum and feeling it. Tho by the above symptoms we may generally be pretty certain when a stricture is present, we should not determine positively before passing the bougie. — Treatment of Strictures. —

"To effect a cure in this disease means are employed with two intentions; either to bring the contracted part back to its original state which is done mechanically by the use of the bougie, or to destroy the obstruction for which the Caustic is used" There is a third mode of treatment revived and practiced by Dr. Physick, that of dividing the stricture by a stilet. Each of the above modes of treating strictures shall be separately considered: but I would first make a few remarks on the Treatment of Spasmodic Strictures. The usual mode of treating Spasmodic Strictures is by means of bloodletting opiates and the warm bath. Mr. Tyrell speaks of using the belladona

with great success in cases of Spasmodic Stricture He armes the bougie with the belladona in the same way that a bougie is armed with caustic and introduces it into the Urethra as far as the obstruction. Mr. Cline has succeeded with the Muriated Tincture of Iron when every other means has been unsuccessful; he gave 5 or 10 drops every 2 or 3 hours. Mr. Pen discovered that the cold bath might be used with decided advantage; the idea occured to him from the circumstance of the contents of his bladder being always expelled upon emersion in cold water.- I will now consider the Treatment of Permanent Strictures, and first: By the Bougie alone - Before considering the use of the bougie I would remark that there are four varieties of this instrument, the plaister the catgut, the flexible gum, and the metalic each of which have their advocates. The mode of introducing the bougie. The best directions for

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introducing the bougie are perhaps given by Mr. Bingham. He says: "If bougies are intended to be introduced beyond the bulb of the Urethra they should be turned up at the end so as to give it a direction upwards after it passes the bulb. Having warmed, oiled and bent the end of the bougie, take hold of the penis just behind the corona glandis between two of the fingers in such a manner as not to compress the Urethra then elevating the penis to such an angle as it would assume in a state of erection introduce the bougie and pass it on gradually until it enters the bulb then depress the hand so as to allow it to enter the membranous part of the canal and pass it on into the bladder". Mr. Bingham further observes that too small a bougie ought not to be used as it is apt to hitch in the lacunæ and gather a fold of the Urethra before its point

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and in that way a false passage is apt to be made. Cure of Strictures by the bougie alone. Sir E Home observes that in the early stage of stricture when the Urethra is not much irritated, the bougie may be used with advantage, and if the stricture by this means can be dilated to the natural size of the canal in a few weeks, a cure can be effected. The only fear he says under these circumstances is, that as the bougie acts purely mechanically, it will not take away the disposition in the part to form strictures and the disease is apt to return. So that it is important that the use of the bougie should be continued some time after the Urethra has obtained its natural shape, so as to take off as much as possible the disposition in the part to contract. It is also important that the size of the bougie should be very gradually increased. The time of keeping in the bougie and the

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frequency of applying it must entirely depend upon the constitution and feelings of the patients. Mr. Bingham never keeps the bougie more than 5 or 10 minutes in the Urethra at the commencement and repeats this every third day. After a time when the Urethra becomes more familiarized to its use it may be repeated oftener. Before entering on the treatment of stictures by caustic I would make a few general remarks. Wiseman is said to have been the first who suggested the idea of using caustic in the cure of strictures, but that he mentioned no case treated with it by himself or any one of his day, so that Mr. Hunter who brought it into practice deserves all the credit that the discovery of so valuable a remedy claims. But it remained for Sir E. Home by his enthusiastic endeavours to enlighten and benefit mankind by its general introduction into practice. Mr. Hunter made use of

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the caustic only with the intention of destroy=
=ing the part which obstructed the passage of
the Urine. Sir E Home used it also for the pur=
=pose of allaying the irritability of strictures
as well as destroying the obstruction. He men=
=tions several cases where the Urethra has
been so irritable as to prevent the use of
bougies but has yelded to the application of
caustic. Previous to the use of caustic it was
frequently necessary to lay open the diseased
urethra and pass a flexible catheter through
the divided parts into the bladder, and even
portions of the diseased Urethra have been dis=
=sected out. The above operations however even
at the present day in particular cases are
resorted to with great advantage. Mode of apply=
=ing Caustic to Strictures. The instrument which Mr.
Hunter first made use of was a silver cannula
and stilet at the end of which a piece of Lunar

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caustic the shape of a pencil was fixed, this was gently pushed down to the stricture against which it was pressed as long a time as was thought proper after which the caustic being protected by the canula, the whole was with=drawn. This mode of applying the caustic Mr. Hunter soon found liable to several objec=tions; one was that a silver canula could not adapt itself to the flexible state of the urethra, so that when the ~~canula is~~ canula is forced the caustic is apt to burn the side of the urethra or to make an oblique orifice through the stricture. Another objection is that from the unyelding nature of the canula it is apt to produce great irritation in the urethra. An improvement on the above mode of applying the caustic soon suggested itself and was adopted by Mr. Hunter, it was by means of an armed bougie wh. was used as follows.

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Take a bougie of such a size as may be readily passed down to the stricture having inserted in the end of it a piece of lunar caustic permit it to remain in contact with the stricture a sufficiently long time, which must be regulated by the feelings of the patient. This mode of arming the bougie was found objectionable as the caustic was apt to fall out and injure a healthy part. Mr. Pass a dealer in bougies discovered a mode of securing the caustic which is described as follows. In making the bougie a piece of wire is inserted in the end of it to the depth that you wish the caustic put, this wire is withdrawn while the bougie is warm and the caustic is inserted in its place so that upon cooling it is cemented to the sides of the linen which in a great measure prevents the danger of its falling out. There is a third mode of applying the caustic to strictures

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which appears to remedy the disadvantages while it combines the advantages of both the above mentioned modes. It is by means of flexible gum canula through which a bougie is passed, this method allows us to apply the caustic in powder or in the form of ointment without injury to the healthy part of the Urethra, this is done by putting some of it on the point of the bougie and passing it through the canula down to the stricture, or putting some of it in the end of the canula and passing the bougie down to and pushing the caustic before it against the stricture. Mr. Howard was the first who recommended the use of caustic in powder and made up into ointment. It must not be neglected previous to the application of the caustic always to ascertain as near as possible the shape and depth of the stricture by means of a soft wax bougie. I will now consider

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briefly the use of the different kinds of caustic and the symptoms produced by caustic in the progress of the cure.- Of the Argentum Nitratum. This is the only application mentioned by Mr. Hunter and Sir E. Home as having been used by them. The success of Sir E Home in the treatment of Strictures speaks a great deal in favor of this remedy. After a bougie has once passed through the stricture Mr. Bingham then recommends the Argentum Nitratum in the form of ointment. Of the Kali Purum Mr. Whately was the first who introduced the use of the Kali Purum. His mode of applying it was by inserting a piece of caustic about the size of a pins head in the point of the bougie. This mode is objectionable for reasons already mentioned. The most general mode of using it is in powder. It is difficult to say the particular cases to which this or the

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Argentum Nitratum are applicable; it is however sufficient to know that each have been successfully used, and that one may succede where the other has failed.

Of the Potassa sub Carbonas. The use of this remedy was introduced by Mr. Bingham, he says, "Being persuaded that when the Kali Purum acted beneficially it did not produce any abrasion of the stricture, but that it merely acted by allaying irritation and exciting copious secretions from the part, I was led to conclude further that if this opinion were correct, precisely the same advantage would be derived from the Potassa sub Carbonas." His experience afterwards verified his opinion. Mr. Bingham remarks that though the effects of this remedy are very much the same as those of the Kali Purum it has some advantages, the Kali Purum being much more violent than it. And as there are cases

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which require great delicacy of treatment the Potassa sub Carbonas is peculiarly adapted to such. Even in obstinate cases it is preferable as a much greater quantity may be used with less risk. Mr. Bingham used this preparation in three ways; either by introducing some of it on the point of a bougie; or putting some of it together with some lard in the end of the canula and pressing it against the stricture by means of a bougie; or by passing an armed bougie through the canula. Mr. Bingham says that the alkalis in general have the property of lessening irritability and exciting the absorbents when applied to any part of the body. Of the Nation Exsiccatum. Almost every thing which has been said of the Potassa sub Carbonas is applicable to this remedy in the treatment of strictures. As Mr. Bingham mentions several cases successfully treated

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by the Natron Exsiccatum alone, we may frequently when other applications have failed or are slow in producing a cure vary the treatment successfully by the use of this remedy. Of the Unguentum Hydrargiri Fortius. Mr. Bingham says that he has cured six cases by this remedy: In three of these other remedies had been employed without success, but immediately improved and were finally cured under the use of this remedy. It may not be altogether out of place to mention that Mr. Bingham has used it successfully in obstinate cases of gleet, also in Phymosis. The usual mode of applying it is by smearing some of it on the end of a bougie and passing it through the stricture. Mr. Bingham appears to give a preference to this remedy in the treatment of strictures, how far this opinion is correct further experience will have to prove. Perhaps his preference is in

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some measure owing to the remedy being new with himself. - Having mentioned as far as I know all the substances that have been made use of in the treatment of strictures, I shall now mention some of the symptoms noticed by Sir E Home as being produced by caustic in the progress of the cure. The sensations from the application of caustic are heat and soreness in the part, this pain is felt some time after the application of the caustic; the duration varies in different persons. There is frequently hæmorrhage from the part to which the caustic has been applied. Sir E. Home says that this has not generally been found attended by bad consequences. Another effect arising from the use of caustic is a fit of fever and ague Sir E Home says that this often comes on after a stricture of long standing has been destroy=ed. The only treatment he advises in these cases

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is opening medecines. The above symptoms are he observes are frequently so severe after each ap=
=plication of the caustic as entirely to prevent its use. In some cases of obdurate strictures also, from the frequency of applying the caustic such irritability has been brought on in the urethra as to prevent its use. It is probably from such symptoms as these, and from the danger of making false passages that some surgeons have been averse to the use of caustic in the treatment of strictures. - It remains now to mention the third and last, though not per=
=haps the least effectual mode of treating stric=
=tures, viz, division by the stilet as performed by Dr. Physick. "The instrument made use of by Dr. Physick is a sort of lancet concealed in a cannula that may be pushed forward or retrac=
=ted at pleasure." That this instrument is peculi=
=arly adapted to certain cases, we do not want

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the evidence of some of our most eminent Sur=
=geons. Dr. Gibson after mentioning the success
with which this instrument has been, and
continues to be used in the hands of Dr. Physick
says, "I myself have likewise succeeded in a great
many cases, in effecting a perfect cure after bougies
caustic and other means had entirely failed. Before
the Clinical class in the Alms house infir=
=mary a few years ago, I perforated with the
stilet a stricture of many years standing near
the bulb, which had resisted for several years
the united efforts of several Surgeons to intro=
=duce an instrument of any description into
the bladder. In three minutes after the divi=
=sion of the stricture a catheter entered and the
patient experienced the greatest possible relief."
After having mentioned the above case it would
be needless for me to advance any thing further
in support of the utility of this mode of treating

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strictures. I believe I have mentioned all the various modes of treating strictures, unless perhaps some peculiarities of the French Surgeons which I have not had an opportunity of seeing described. Before concluding this subject I would make a few remarks on some of the consequences of strictures. One of the consequences of stricture says Mr. Tyrrell is an extravasation of Urine into the Perineum, the Urethra gives way and the Urine finds its way into the Perineum Scrotum and integuments of the Penis. He says the operation for the relief of this complaint consists in the division of the stricture, and an incision is made in the raphe directly on it. The stricture is then divided from above downwards and immediately the Urine gushes out. Mr. Tyrrell has performed this operation frequently without difficulty and with success. He says there is a paper lately out by Mr. Shaw of London, in which the division of strictures is recommended in preference to the caustic. As I have not seen

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it I can say nothing about it. An enlarged testicle is mentioned as existing frequently in consequence of stictures, arising from a sympathy which exists between it and the Urethra, and is only cured upon the removal of the stricture. Fistula in Perineo is another frequent consequence of stictures, though perhaps oftener from neglect in the treatment of stictures. Hydroceles are also mentioned by Sir E. Home as arising from stictures and to be cured upon the removal of the stricture. I would finally remark on the authority of Sir E. Home, that there are many constitutional diseases arising from stictures in the Urethra and which have been unsuccessfully treated by the remedies usual in such cases, considering it as an independent disease, but have been cured upon the removal of the ~~disease~~ stricture which was the cause, proving the disease to have been merely a sympathetic one. —

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